

RCA

HANDBOOK DATA SERVICE



RCA
ELECTRON
TUBE
HANDBOOK
HB-3

TYPES INCLUDED IN HB-3

- Receiving Tubes (Entertainment – Industrial)
- Transmitting Tubes – Magnetrans – Klystrons – Traveling-Wave Tubes
- Cathode-Ray Tubes – Picture Tubes – Storage Tubes
- Phototubes – (Multiplier – Gas – Vacuum) – Photocells
- Vidicons – Image Orthicons – Image-Converter Tubes
- Thyratrons – Ignitrons – Glow-Discharge Tubes
- Rectifiers (Vacuum – Gas)

TYPES INCLUDED IN HB-10

- Transistors (Silicon – Germanium)
- Silicon Rectifiers (High Current – High Voltage)
- Tunnel Rectifiers – Tunnel Diodes
- Silicon Controlled-Rectifiers



RADIO CORPORATION OF AMERICA

ELECTRONIC COMPONENTS AND DEVICES

HARRISON, NEW JERSEY

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HB-904 6-65
Printed in U.S.A.

RCA ELECTRON TUBE HANDBOOK HB-3

Approximately 6000 Pages of Electron-Tube Data for
1500 Tube Types

Data includes applications, characteristics, maximum ratings, typical operating values, mechanical dimensions, and characteristic curves—

In addition, Special Features of each Section include:

General Section—Comprehensive Table of Contents and Index—General tube information including detailed outline and base drawings.

Cathode-Ray Tube, Storage Tube, & Monoscope Section—Classification Chart and Picture-Tube Replacement Guide to facilitate tube selection—Definitions and detailed charts on tube phosphors (includes Persistence and Spectral-Energy Emission Data).

Photosensitive Device Section—Up-to-date Selection Guide for RCA Photosensitive Devices—Photocell Data Tables and Replacement Directory—Spectral-Sensitivity Charts.

Thyratron, Ignitron, & Glow-Discharge Tube Section—Complete selection guide listing types in increasing order of current- or voltage-handling capability—Also included are practical Grid-Controlled Rectifier Circuits with associated electrical ratio constants.

Receiving Tube Section—A Practical Application Guide for RCA Receiving Tubes listing types best suited for receiving entertainment applications—Design aids such as the resistance-coupled amplifier charts and diode plate-characteristic nomograph.

Receiving-Type Industrial Tube Section—A comprehensive Application Guide for RCA Receiving-Type Industrial Tubes listing types best suited for specific industrial applications—Also included is a list of tube types designed to meet MIL specifications.

Transmitting Tube Section — A 25-page article on Transmitting Tube Operating Considerations, Simplified tube selection with convenient Selection Guide on RCA Transmitting Tubes and Rectifiers — Guide lists transmitting tubes under 16 classes of operation in increasing order of power for AF, RF telegraphy and telephony, single-sideband, and television service—Also shown is handy reference chart on Circuits for Mercury-Vapor and Gas Rectifier Tubes with associated electrical ratio constants.

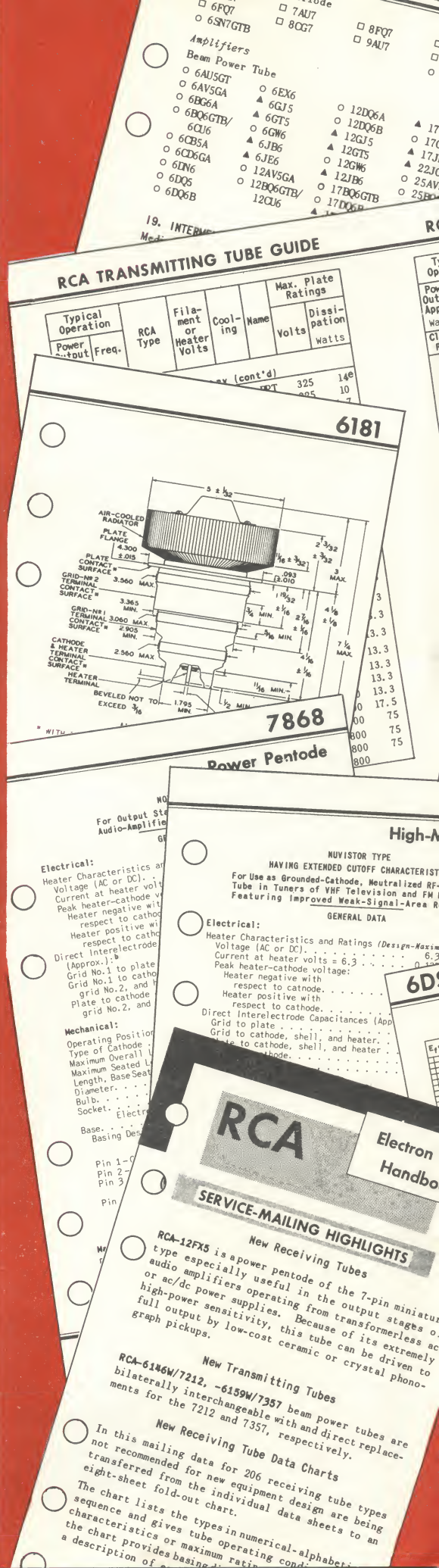
RCA SEMICONDUCTOR PRODUCTS HANDBOOK HB-10

Over 1600 Pages of Semiconductor-Device Data for More Than 500 Transistors, Silicon Rectifiers, Silicon Controlled-Rectifiers, Tunnel Diodes, and Tunnel Rectifiers

In addition each Section contains:

General Section — Comprehensive Table of Contents and Index — Complete up-to-date Application and Selection Guides for Transistors and for Silicon Rectifiers, Diodes, Tunnel Diodes, and Tunnel Rectifiers — Transistor guide provides information on types best suited for specific applications — Guides are arranged to permit easy selection of a device by its most important characteristics and ratings — Included in this section are a Rectifier Circuits and Characteristics Chart useful in design of ac-to-dc power supplies and other general information on semiconductor devices — Also provided is a list of RCA types designed to meet MIL specifications.

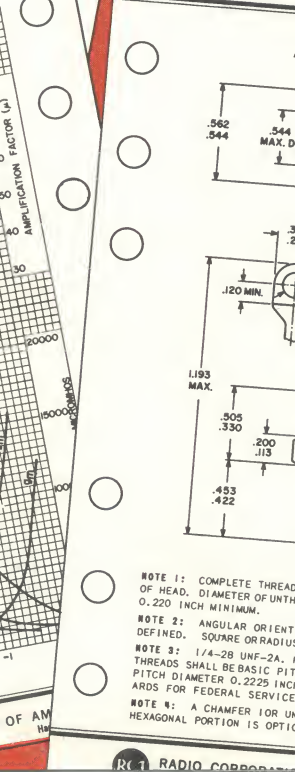
Semiconductor Device Section — Applications, characteristics, maximum ratings, typical operating values, mechanical dimensions, and characteristic curves for silicon and germanium transistors, silicon rectifiers, silicon controlled-rectifiers, tunnel diodes and tunnel rectifiers.



☐ 19HS6
☐ 6KL8
☐ 12KL8
☐ 6JH6
☐ 12BZ6
☐ 19HW6
☐ 8FW6
☐ 9FW6A
☐ 50FK5
☐ 60FX5
☐ 7189
☒ 7868
 SUITS (AGC & AVC)
☐ 20EC7
☐ 12BF6

I_{FW} (surge)
 I_{SEN}
 I_{HOO}
 I_{RBO}
 I_{FAY}
 Average
 Peak Surge Current — The maximum value of forward current which may be imposed on the average forward current within its specified maximum voltage ratings, gate-power, and supply in a single-phase circuit. The current may be repeated after sufficient elapsed for the device to return to its thermal equilibrium conditions.
 Peak Forward Gate Current — The maximum instantaneous value of the current which may flow between gate and cathode.
 Holding Current — The instantaneous average forward current I_F below which a control rectifier with its gate open returns to its forward blocking state.
 Instantaneous Reverse Leakage Current — The average reverse leakage current when the device is reverse biased.
 Mechanical:
 Dimensions:
 Terminal Diagram:

4



Sharp-Cutoff Twin Pentode □ 4GS8
 □ 3BU8 □ 4BU8
 □ 3GS8

3. BURST AMPLIFIERS
 Medium-Mu Triode—Sharp-Cutoff F □ 6GF
 □ 5EAB □ 6EA8
 □ 5GH8

High-Mu Triode with Twin Dio (
 □ 6BN8

4. CATHODE-DRIVE RF AMPLI'
 Medium-Mu Triode ○
 □ 6BC4

Medium-Mu Twin Triode

☐ 4BC8	☐ 4BZ7
☐ 4BQ7A	☐ 5BK7A
☐ 4BS8	☐ 5BQ7

High-Mu Triode ☐ 6A

☐ 2CW4	
☐ 2DS4	

High-Mu Twin Tr ☐

☐ 6DT8	
☐ 12AT7	

5. COLOR K1

☐ Quadrule	
☐ 6JUB	

Thermal: Plate

2N681

Controlled-Rectifier

ION TYPE

Designed Applications in In-
creasing to Meet Strin-
g Mechanical Specifications.

TO-48 in General Section

GATE
(SHORT
ORIGINAL)

RECT

2

DC OUTPUT
VOLTS

Peak Wave
form

TYPICAL

- COMMON-EMITTER CASE TEMPERATURE
- $V_{CE(TH)}$ COLLECTOR-EMITTER VOLTAGE
- SUSTAINING VOLTAGE
- $V_{CE(V)}$ VOLTAGE AT LOW VOLTAGE FACTOR (1/10)
- $V_{CE(V)}$ COLLECTOR-EMITTER VOLTAGE WITH REVERSE BIAS

Outline TO-48

1/2 inch

NOTE 2

55
55
HOLE

RCA
SEMICONDUCTOR PRODUCTS
HARRISBURG, PA.

SERVICE-MAILING

New Silicon Controlled Rectifiers
RCA-2N681 through 2N689
for new families of
p-n-p-n and p-n-p-n
control devices

THIN 2 1/2
0.249 INCH

TERMINALS
MINIAL IS OPTI

DIAMETER OF PL

268 INCH, MINIA

CREW THREAD STAND

OR H28 1957 PI

OR BOTH ENDS OF

TU-STAGE, HEAD-ON,
 FLAT-PLATEALONE
 For Detection and Measurement of
 Clear Radiation and other Low-
 Intensity Radiation
 (Installation Cou-
 AT A
 4400
 G
 Lime Glass (Corn
 Cop
 Distances (Approx.):
 Modes.
 Lorange No. 2274, or
 Millen No. R08028, or
 Medium-Shell Dihept
 Group 5, No. 814-38, Non-H
 BOTTOM VIEW
 Any
 2.445 ± 0.075
 1.250 ± 0.015
 2.02
 of tube
 K-Heater- &
 Cathode-
 Terminal
 Contact
 Surface
 Plate-
 Terminal
 Contact
 De
 Direction of Radiation
 INTO END OF BULB

surface

CHARACTERISTICS CHART						
CURRENT RATING PER RECTIFIER CE ⁵						
For resistive load				For inductive load or high inductance choke-input filter		
Average form	AV	RMS	Peak	Ratio: Pk/AV	RMS	Peak Ratio: Pk/AV

015	.587	1.21			
x	x	x	2.50	.578	1.00

	I_{AV}	I_{AV}	3.63	x I_{AV}	x I_{AV}	3.0
	.579 x I_{AV}	1.05 x I_{AV}	3.15	.578 x I_{AV}	1.00 x I_{AV}	3.00
	.409	1.05				

2N2

ALICOM N-P-W DOUBLE-DIFFUSED EPITAXIAL-PLANAR
 For Amplifier, Mixer, and Oscillator Servis
 in VHF and UHF (200 to 500 Mc) Application

GENERAL DATA

Transistors: (Similar to T0-18 outline device
 in Gen

Bottom VIEW

Terminal Diagram:

Lead

Lead 1 - Emitter
Lead 2 - Base

RADIO-FREQUENCY SERVICE

Maximum and Minimum Ratings, Absolute-Maximum	
COLLECTOR-TO-BASE VOLTAGE:	V_{CB0}
With emitter open	
COLLECTOR-TO-EMITTER VOLTAGE:	V_{CE0}
With base open	
EMITTER-TO-BASE VOLTAGE:	V_{EB0}
With collector open	
COLLECTOR CURRENT	I_C

TRANSISTOR DISSIPATION:
 Temperatures: P_T

At free-
From 450 to 250 C. Derate
Above 250 C.
TEMPERATURE: T_{stg}
Junction (Operating) T_j
Storage T_l
Leads, for 10 seconds maximum.

ELECTRICAL CHARACTERISTICS
less otherwise specified, free-air

ector-to-Base Breakdown
ge for dc collector V_{CE}
with current $I_C = 0.1$ A. $V_{CE} = 80$
along lead at distances not less

RCA ELECTRON TUBE HANDBOOK HB-3

This Handbook is supplied in five binders having gold-imprinted black covers. A set of binder labels for identification of contents is included.

RCA SEMICONDUCTOR PRODUCTS HANDBOOK HB-10

This Handbook is supplied in two binders having gold-imprinted red covers.

FEATURES OF BOTH HANDBOOKS

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The binders of each Handbook set are of a new design having special features permitting easy and rapid utilization of the data sheets. Each binder has a capacity of about 600 sheets and is $7\frac{3}{8}$ " L x $5\frac{5}{8}$ " W x $2\frac{7}{8}$ " D. The four split prongs and the hinged back with position stops permit the sheets to lie flat when the Handbook is used and prevent the sheets from falling out when the pages are turned.

DATA SHEETS

The data sheets are printed on a specially formulated white kraft paper having a very high tear strength and excellent opacity.

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Sheets supplying new and/or revised data are issued periodically, together with simplified instructions for their filing. Service Mailing Highlights accompanying each mailing give design and application features of each new type together with other information of interest to equipment designers. The annual service fee for Service Mailings after the first year is \$4.00 for HB-3 (\$5.50 foreign), \$3.00 for HB-10 (\$4.50 foreign), and \$6.00 for combined HB-3 and HB-10 (\$7.75 foreign).

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